WEST Search History

DATE: Wednesday, October 09, 2002

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L3	L2 and (endosome$ or endocytosis)	1	L3
L2	(drug adj1 delivery) same poly$acrylic	79	L2
L1	(drug adj1 delivery) same endosome$	28	L1

END OF SEARCH HISTORY

L1: Entry 6 of 28 File: USPT Nov 20, 2001

DOCUMENT-IDENTIFIER: US 6320017 B1
TITLE: Polyamide oligomers

Detailed Description Text (9):
The term "fusogenic" refers to the ability of a liposome or other drug delivery system to fuse with membranes of a cell. The membranes can be either the plasma membrane or membranes surrounding organelles, e.g., endosome, nucleus, etc. "Fusogenesis" is the fusion of a liposome to such a membrane.

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L1: Entry 8 of 28 File: USPT Mar 13, 2001

DOCUMENT-IDENTIFIER: US 6200599 B1
TITLE: Ortho ester lipids

Detailed Description Text (29):
The term "fusion" refers to the ability of a liposome or other drug delivery system to fuse with membranes of a cell. The membranes can be either the plasma membrane or membranes surrounding organelles, e.g., endosome, nucleus, etc. "Fusogenesis" is the fusion of a liposome to such a membrane.

L1: Entry 13 of 28 File: USPT Mar 21, 2000

US-PAT-NO: 6040167
DOCUMENT-IDENTIFIER: US 6040167 A

TITLE: Synthetic membrane vesicles containing functionally active fusion peptides as drug delivery systems

DATE-ISSUED: March 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gluck; Reinhard	Spiegel bei Bern			CH
Klein; Peter	Langenbruck			CH
Herrmann; Peter	Liestal			CH
Walti; Ernst Rudolf	Munchenbuchsee			CH

US-CL-CURRENT: 435/235.1; 424/179.1, 424/450, 514/2, 530/350, 530/388.1, 530/388.8, 530/389.7, 530/391.1

CLAIMS:

We claim:

1. A phospholipid bilayer vesicle having at least one desired drug or pharmaceutically active substance therein, said vesicle comprising:

(a) a membrane having one or more viral phospholipids in combination with other phospholipids comprising phosphatidylethanolamine (PE);

(b) at least one active fusion peptide that is a non-Sendai viral hemagglutinin that causes the vesicles to be internalized by target cells through phagocytosis or endocytosis, said hemagglutinin being attached directly or indirectly to said membrane;

(c) a bifunctional crosslinker linked to phosphatidylethanolamine (PE) of said membrane; and

(d) at least one cell-specific marker linked via its sulphur to the PE-bound crosslinker, said marker being a biologically active protein for binding to a receptor of target cells.

2. The vesicle according to claim 1, whose membrane comprises less than 1% cholesterol by weight.

3. The vesicle according to claim 1, wherein said vesicle has a diameter ranging from about 50 to 100 nm.

4. The vesicle according to claim 1, wherein the viral phospholipids are derived from at least one virus selected from the group consisting of influenza virus, rhabdovirus, parainfluenza virus type III, Semliki Forest virus and togavirus.

5. The vesicle according to claim 4, wherein the influenza virus is of the A-H.sub.1 N.sub.1 subtype.

6. The vesicle according to claim 1, wherein the membrane includes:

70-95% by weight of phosphatidylcholine and 5 to 30% by weight of phosphatidylethanolamine, based on total phospholipids; and

5 to 10% by weight of said bifunctional crosslinker.

7. The vesicle according to claim 1, wherein the crosslinker is a sulfosuccinimidyl derivative.

8. The vesicle according to claim 1, wherein the cell-specific marker is a monoclonal antibody.

9. The vesicle according to claim 8, wherein said antibody is an IgG antibody.

10. The vesicle according to claim 1, wherein said other phospholipids further comprise phosphatidylcholine.

11. The vesicle according to claim 1, wherein the desired drug or pharmaceutically active substance is selected from the group consisting of dextran sulfate, ribonuclease dimer, lysozyme dimer, imidazole-carboxamide, hydroxy-urea, adriblastin, endoxan, fluoro-uracil, and colchicine.

12. The vesicle of claim 1, wherein said viral hemagglutinin is hemagglutinin derived from at least one virus selected from the group consisting of influenza virus, rhabdovirus, parainfluenza virus type III, Semliki Forest virus, and togavirus.

13. The vesicle of claim 1, wherein said viral hemagglutinin is hemagglutinin trimer of influenza virus.

14. The vesicle according to claim 1, wherein the bifunctional crosslinker is derived from a crosslinking organic molecule that comprises a carboxylic and a maleimido group.

15. The vesicle according to claim 14, wherein the organic molecule is sulfosuccinimidyl-4-(p-maleimidophenyl)butyrate (Sulfo-SMPB).

16. A phospholipid bilayer vesicle according to claim 1, wherein the phospholipids comprise 70-95% by weight of phosphatidylcholine and 5 to 30% by weight of phosphatidylethanolamine, based on total phospholipids, and wherein further the hemagglutinin is hemagglutinin trimer from influenza virus, the crosslinker is present in a concentration of 5 to 10% by weight and is derived from a crosslinking organic molecule that comprises a carboxylic and a maleimido group, and the cell-specific marker is a monoclonal antibody.

17. The vesicle according to claim 16, wherein the desired drug or pharmaceutically active substance is selected from the group consisting of dextran sulfate, ribonuclease dimer, lysozyme dimer, imidazole-carboxamide, hydroxy-urea, adriblastin, endoxan, fluoro-uracil, and colchicine.

18. The vesicle according to claim 1, wherein said other phospholipids further comprise phosphatidylcholine which is present in the membrane in a weight-ratio ranging from 1:2 to 1:100 of viral phospholipids:phosphatidylcholine.

19. A method of slowing the progression of cancer, comprising the step of:

administering to a patient in need of such treatment an effective amount of pharmaceutical preparation comprising phospholipid bilayer vesicles as defined in any one of claim 1, 13 or 16, and wherein at least one anti-cancer drug is encapsulated in said vesicles and is administered to said patient at a dose of approximately 0.001 to 10 mg of drug per kg body weight.

20. The method according to claim 19, wherein said anti-cancer drug is selected

from the group consisting of dextran sulfate, ribonuclease dimer, lysozyme dimer, imidazole-carboxamide, hydroxy-urea, adriblastin, endoxan, fluoro-uracil, and colchicine.

21. A method of prophylactic intervention or therapeutic treatment of a viral disease, comprising the step of:

administering to a patient in need of such treatment an effective amount of pharmaceutical preparation comprising phospholipid bilayer vesicles as defined in any one of claim 1, 13 or 16 and wherein at least one anti-viral drug is encapsulated in said vesicles and is administered to said patient at a dose of approximately 0.001 to 10 mg of drug per kg body weight.

22. The method according to claim 21, wherein said antiviral drug is selected from the group consisting of dextran sulfate, ribonuclease dimer and lysozyme dimer.

23. A pharmaceutical composition, comprising a pharmaceutically acceptable carrier and an effective amount of a desired drug or pharmaceutically active substance encapsulated in a vesicle as defined in claim 1, 13 or 16, wherein the effective amount ranges from 0.001 to 10 mg of drug per kg body weight.

24. The pharmaceutical composition according to claim 23, wherein the desired drug or pharmaceutically active substance is selected from the group consisting of dextran sulfate, ribonuclease dimer, lysozyme dimer, imidazole-carboxamide, hydroxy-urea, adriblastin, endoxan, fluoro-uracil, and colchicine.

25. A process for the preparation of a phospholipid bilayer vesicle comprising at least one fusion peptide and at least one cell-specific marker on the membrane, and at least one desired drug or pharmaceutically active substance, said process comprising the steps of:

(a) dissolving purified virus or parts thereof containing non-Sendai hemagglutinin that causes the vesicles to be internalized by target cells by phagocytosis or endocytosis, in a non-ionic detergent solution that does not react with hemagglutinin and that comprises octaethyleneglycol monododecylether;

(b) subjecting the solution resulting from step (a) to ultracentrifugation, and mixing the resulting supernatant which contains viral lipids and at least one hemagglutinin fusion peptide with said desired drug or substance;

(c) combining the mixture with other phospholipids, said other phospholipids comprising phosphatidylethanolamine;

(d) repeatedly treating the mixture from step (c) with microcarriers to remove the detergent whereby vesicles are formed;

(e) subjecting the vesicles resulting from step (d) to repeated ultrasonication to adjust the size of the vesicles;

(f) reacting the vesicles of step (c) with a bifunctional crosslinker for binding to phosphatidylethanolamine (PE) of the vesicle membrane and for binding polypeptides, and pelleting the vesicles; and

(g) reacting the pelleted vesicles with a solution containing at least one cell-specific marker for binding to the PE-bound crosslinker, said marker being a biologically active protein for binding to a receptor of target cells.

26. The process according to claim 25, wherein the detergent solution comprises a fusion buffer and 10 to 250 .mu.mol octaethyleneglycol monododecylether per ml.

27. The process according to claim 25, wherein the detergent solution comprises a fusion buffer and 80 to 120 .mu.mol octaethyleneglycol monododecylether per ml.

28. The process according to claim 25, wherein the microcarriers are polystyrene beaded microcarriers having a wet mesh size of 20-50, and the solution under step (d) is treated four times with said microcarriers.

29. The process according to claim 25, wherein said cell-specific marker is an antibody.

30. The process of claim 25, wherein the crosslinker is a sulfosuccinimidyl derivative.

31. The process of claim 25, wherein the detergent is removed from the solution by the application of 1 to 2 g of polystyrene beaded microcarriers per 100 mg detergent.

32. The process of claim 25, wherein said other phospholipids added in step (c) further comprise phosphatidylcholine.

33. The process of claim 25, wherein said viral hemagglutinin is hemagglutinin derived from at least one virus selected from the group consisting of influenza virus, rhabdovirus, parainfluenza virus, Semliki Forest virus and togavirus.

34. The process of claim 25, wherein said viral hemagglutinin is hemagglutinin trimer of influenza virus.

35. The process according to claim 25, wherein the crosslinker is a crosslinking organic molecule that comprises a carboxylic and a maleimido group.

36. The process according to claim 35, wherein said organic molecule is a sulfosuccinimidyl-4-(p-maleimidophenyl)butyrate (Sulfo-SMPB).

37. A phospholipid bilayer vesicle comprising:

at least one fusion peptide and at least one cell-specific marker on a membrane; and

at least one desired drug or pharmaceutically active substance, wherein the membrane includes

(a) one or more viral phospholipids in combination with other phospholipids, the other phospholipids comprising phosphatidylethanolamine;

(b) at least one non-Sendai viral hemagglutinin, as a fusion peptide;

(c) a bifunctional crosslinker bound to said membrane containing said phosphatidylethanolamine, said crosslinker for binding polypeptides;

(d) at least one cell-specific marker linked via sulphur to the crosslinker, said marker being a protein which is further capable of linking to a receptor of cells inducing the endocytosis mechanism; and

(e) cholesterol in a concentration of less than approximately 10% by weight.

38. The vesicle according to claim 37, wherein said other phospholipids further comprise phosphatidylcholine which is present in the membrane in a weight-ratio ranging from 1:2 to 1:100 of viral phospholipids:phosphatidylcholine.

39. A phospholipid bilayer vesicle of a structure that results from the steps of:

(a) dissolving purified virus or parts thereof containing non-Sendai hemagglutinin that causes the vesicles to be internalized by target cells by phagocytosis or endocytosis, in a non-ionic detergent solution that does not react with hemagglutinin and that comprises octaethyleneglycol monododecylether;

(b) subjecting the solution resulting from step (a) to ultracentrifugation, and mixing the resulting supernatant which contains viral lipids and at least one hemagglutinin fusion peptide with said desired drug or substance;

(c) combining the mixture with other phospholipids, said other phospholipids comprising phosphatidylethanolamine;

(d) repeatedly treating the mixture from step (c) with microcarriers to remove the detergent whereby vesicles are formed;

(e) subjecting the vesicles resulting from step (d) to repeated ultrasonication to adjust the size of the vesicles;

(f) reacting the vesicles of step (e) with a bifunctional crosslinker for binding to phosphatidylethanolamine (PE) of the vesicle membrane and for binding polypeptides, and pelleting the vesicles; and

(g) reacting the pelleted vesicles with a solution containing at least one cell-specific marker for binding to the PE-bound crosslinker, said marker being a biologically active protein for binding to a receptor of target cells.

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L1: Entry 14 of 28 File: USPT Dec 7, 1999

US-PAT-NO: 5998588
DOCUMENT-IDENTIFIER: US 5998588 A

TITLE: Interactive molecular conjugates

DATE-ISSUED: December 7, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hoffman; Allan S.	Seattle	WA		
Stayton; Patrick S.	Seattle	WA		

US-CL-CURRENT: 530/402; 424/178.1, 424/193.1, 424/280.1, 424/78.08, 424/94.1, 530/350, 530/387.1, 530/391.1, 530/395, 530/399, 530/403, 530/404, 530/405, 530/406

CLAIMS:

We claim:

1. A synthetic stimulus responsive conjugate comprising:

an affinity interactive polymeric component capable of specifically binding to a target selected from the group consisting of a protein, peptide, polysaccharide, oligosaccharide, and glycoprotein; and

a stimulus responsive polymeric component modulating the binding of the affinity interactive polymeric component to the target in response to a stimulus altering the conformation of the stimulus responsive polymeric component selected from the group consisting of light, pH, ions, ionic strength, electric field and solvents,

wherein the components are coupled directly or indirectly by means of a spacer or linker at a linkage site selected from the group consisting of (a) just outside the binding site of the molecule, (b) at a selected distance away from the binding site, (c) just inside the binding site, (d) deep inside the binding pocket, and (e) at an allosteric site distant from the binding site, wherein the binding of the affinity interactive polymeric component to the target does not change in response to the stimulus except when conjugated to the stimulus responsive polymeric component.

2. The conjugate of claim 1 wherein the stimulus responsive component is capable of modulating the binding of the affinity interactive component to the target in response to a change in pH.

3. The conjugate of claim 1 wherein the affinity interactive component is a protein or a peptide.

4. The conjugate of claim 3 wherein the affinity interactive component is selected from the group consisting of an antibody, antigen, cell membrane receptor, a ligand capable of binding to a cell membrane receptor, an enzyme, an enzyme substrate, and a cofactor.

5. The conjugate of claim 1 wherein the target is selected from the group

consisting of an antibody, antigen, cell membrane receptor, a ligand capable of binding to a cell membrane receptor, an enzyme, an enzyme substrate, and a cofactor.

6. The conjugate of claim 1 wherein the affinity interactive component comprises a molecule selected from the group consisting of a therapeutic agent, a diagnostic agent, and a catalytic agent.

7. The conjugate of claim 1 wherein the affinity interactive region comprises a therapeutic agent selected from the group consisting of an antibiotic agent, an anti-inflammatory agent, an anti-cancer agent, an anti-viral agent and an anti-enzyme agent.

8. The conjugate of claim 1 wherein the stimulus responsive conjugate is immobilized upon a surface or within a hydrogel.

9. The conjugate of claim 1 comprising a spacer between the affinity interactive component and the stimulus responsive component.

10. A method for making a synthetic stimulus responsive conjugate comprising:

coupling an affinity interactive polymeric component capable of specifically binding to a target with a stimulus responsive polymeric component modulating the binding of the affinity interactive component to the target in response to a stimulus,

wherein the affinity interactive polymeric is selected from the group consisting of a protein, peptide, polysaccharide, oligosaccharide, and glycoprotein and the stimulus responsive polymeric component modulates the binding of the affinity interactive polymeric component to the target in response to a stimulus altering the conformation of the stimulus responsive polymeric component which is selected from the group consisting of light pH, ions, ionic strength, electric field and solvents,

wherein the two polymeric components are coupled at a linkage site selected from the group consisting of (a) just outside the binding site of the molecule, (b) at a selected distance away from the binding site, (c) just inside the binding site, (d) deep inside the binding pocket, and (e) at an allosteric site distant from the binding sites, wherein the binding of the affinity interactive polymeric component to the target does not chance in response to the stimulus except when conjugated to the stimulus responsive polymeric component.

11. The method of claim 10 wherein the stimulus responsive component is capable of modulating the binding of the affinity interactive component to the target in response to a change in pH.

12. The method of claim 10 wherein the affinity interactive component is a protein or a peptide.

13. The method of claim 12 wherein the affinity interactive component is selected from the group consisting of an antibody, antigen, cell membrane receptor, a ligand capable of binding to a cell membrane receptor, an enzyme, an enzyme substrate and a cofactor.

14. The method of claim 10 wherein the target is selected from the group consisting of an antibody, antigen, cell membrane receptor, a ligand capable of binding to a cell membrane receptor, an enzyme, an enzyme substrate and a cofactor.

15. The method of claim 10 wherein the affinity interactive component comprises a molecule selected from the group consisting of a therapeutic agent, a diagnostic agent, and a catalytic agent.

16. The method of claim 10 wherein the affinity interactive component comprises a therapeutic agent selected from the group consisting of an antibiotic agent,

an anti-inflammatory agent, a catalytic agent, an anti-cancer agent, an anti-viral agent, and an anti-enzyme agent.

17. The method of claim 10 wherein the target comprises a molecule selected from the group consisting of a therapeutic agent, a diagnostic agent, and a catalytic agent.

18. The method of claim 10 wherein the stimulus responsive conjugate is immobilized upon a surface or within a hydrogel.

19. The method of claim 18 wherein the stimulus responsive conjugate is immobilized on a solid surface and wherein the method further comprises separating the target from a mixture using the stimulus responsive conjugate in a separation method selected from the group consisting of low pressure chromatography, high performance liquid chromatography, affinity precipitation, membrane separation, two phase separation and immunoadsorption separation.

20. The method of claim 18 wherein the stimulus responsive conjugate immobilized upon a surface is provided within a sensor device for the detection of the target, the method further comprising detecting the target in a sample with the sensor.

21. The method of claim 10 wherein the components are coupled by complexation.

22. The method of claim 10 wherein the components are coupled by covalent linkage.

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L1: Entry 16 of 28 File: USPT Oct 26, 1999

DOCUMENT-IDENTIFIER: US 5972380 A
TITLE: Aminophospholipid compositions and uses thereof

Brief Summary Text (6):
In another facet, the use of liposomes as drug delivery systems has been explored for some time. A primary problem in liposomal delivery has been the inability to effectively release liposomal contents into the cell cytoplasm: most liposomes are taken up by cells into endosomes, low pH membrane compartments within the cell. To overcome these problems, the applicant has designed and synthesized reversibly N-modified or "caged" aminophospholipids. These lipids are N-acylated with structural analogs of maleic anhydride, which can be released by exposure to low pH solutions. The lipids can be incorporated into the liposomes to create pH-sensitive liposomes which can be used to effectively deliver active agents such as pharmaceuticals to cellular cytoplasm; and can also be used in labeling cells and the study of enzymatic activity such as flippase activity.

L1: Entry 17 of 28 File: USPT Mar 23, 1999

DOCUMENT-IDENTIFIER: US 5885613 A
TITLE: Bilayer stabilizing components and their use in forming programmable fusogenic liposomes

Brief Summary Text (4):
In contrast to passive drug release, active drug release involves using an agent to induce a permeability change in the liposome vesicle. Liposome membranes can be constructed so that they become destabilized when the environment becomes acidic near the liposome membrane (see, e.g., Proc. Natl. Acad. Sci. USA 84:7851 (1987); Biochemistry 28:908 (1989)). When liposomes are endocytosed by a target cell, for example, they can be routed to acidic endosomes which will destabilize the liposome and result in drug release. Alternatively, the liposome membrane can be chemically modified such that an enzyme is placed as a coating on the membrane which slowly destabilizes the liposome. Since control of drug release depends on the concentration of enzyme initially placed in the membrane, there is no real effective way to modulate or alter drug release to achieve "on demand" drug delivery. The same problem exists for pH-sensitive liposomes in that as soon as the liposome vesicle comes into contact with a target cell, it will be engulfed and a drop in pH will lead to drug release.

L1: Entry 19 of 28 File: USPT Mar 2, 1999

DOCUMENT-IDENTIFIER: US 5876989 A
TITLE: Transfer of molecules into the cytosol of cells

Brief Summary Text (4):
In PCT/US93/00683 a drug delivery system is described which is comprised of an anticancer drug and a photoactivatable drug attached to copolymeric carriers. Upon administration this complex enters the cell interior by pinocytosis or phagocytosis and will be located inside the endosomes and lysosomes. In the lysosomes the bond between the antineoplastic compound and the polymer is hydrolyzed and the former can diffuse passively through the lysosome membrane into cytosol. Thus this method limits the method to small molecular compounds which are able to diffuse across the lysosome membranes. After allowing a time lag for diffusion a light source of appropriate wavelength and energy is applied to activate the photoactivatable compound. The combined effect of the anticancer drug and photoactivatable drug destroy the cell. Thus all use of photoactivatable compounds known is directed to extensively destroy cell structures leading to cell death It is not known of a method to release membrane unpermeable molecules into the cytosol after localized rupturing of endosomal/lysosomal membranes.

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L1: Entry 19 of 28 File: USPT Mar 2, 1999

US-PAT-NO: 5876989
DOCUMENT-IDENTIFIER: US 5876989 A

TITLE: Transfer of molecules into the cytosol of cells

DATE-ISSUED: March 2, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berg; Kristian	Heggedal			NO
Sandvig; Kirsten	Oslo			NO
Moan; Johan	Oslo			NO

US-CL-CURRENT: 435/173.7; 435/375, 514/410, 514/44, 540/145

CLAIMS:

We claim:

1. A method for introducing a molecule of interest into the cytosol of a living cell, comprising:

a) delivering a photosensitizing compound, the molecule of interest, and a carrier molecule to the cell, wherein each are taken up into an intracellular compartment of the cell;

b) irradiating the cell with light of a suitable wavelength to activate the photosensitizing compound so that the membrane surrounding the intracellular compartment is disrupted, releasing the molecule of interest into the cytosol of the cell without killing the cell.

2. The method according to claim 1 wherein the molecule of interest is DNA, an oligonucleotide, mRNA, antisense DNA, a sugar, a protein, a peptide, a membrane impermeable molecule, or a covalently or noncovalently bonded combination thereof.

3. The method according to claim 1, wherein the molecule of interest is gelonin, saporin, agrostin, or a combination thereof.

4. The method according to claim 1, wherein the photosensitizing compound is a porphyrin, a phthalocyanine, a purpurin, a chlorin, a benzoporphyrin, a napthalocyanine, a cationic dye, a tetracycline, or a lysosomotropic weak base or derivative thereof.

5. The method according to claim 4, wherein the photosensitizing compound is tetraphenyl porphine with 2 sulfonate groups on adjacent phenyl groups (TPPS.sub.2a), meso-tetraphenyl porphine with 4 sulfonate groups (TPPS.sub.4), or aluminum phthalocyanine with 2 sulfonate groups on adjacent phenyl rings (AlPcS.sub.2) or a combination thereof.

6. The method according to claim 1, further comprising providing a vector molecule which facilitates the uptake of either the photosensitizing compound or the molecule of interest which is to be released into the cytosol.

7. The method according to claim 1, wherein the method is applied to a plurality of cells and wherein the step of irradiating includes selecting a light dose and wavelength and a photosensitizing compound so that after the step of irradiation, a portion of the living cells are killed.

L1: Entry 20 of 28 File: USPT Jul 28, 1998

DOCUMENT-IDENTIFIER: US 5786214 A
TITLE: pH-sensitive immunoliposomes and method of gene delivery to the mammalian central nervous system

Brief Summary Text (5):
A series of synthetic lipids have been synthesized to facilitate the intracellular delivery of the liposome's contents after the cell has engulfed the liposome. The normal endocytic pathway that a cell utilizes to engulf external particles will cause the digestion and destruction of the particle. In the case of an immunoliposome the liposome and the contents will be destroyed. The natural endocytic pathway involves a pH change in the endocytic particle, the endosome, by the addition of naturally occurring proton pumps after the cell has internalized the particle. This causes a drop in the pH of the internal portion of the endosome. This occurrence can be used to the advantage of the liposome engineer in that liposomes have been developed that "disrupt" when the pH is lowered to a certain point. The point at which a pH-sensitive immunoliposome "disrupts" can be controlled by the addition, to the components of the liposome, of a variety of lipids. (S. Wright and L. Huang, Adv. Drug Delivery Rev., 3, 343-389 (1989); D. Collins, D. C. Litzinger, and L. Huang, Bichim. Biophys. Acta, 1025(2), 234-242 (1990)). The proper combination of components will allow the successful delivery of the liposomes contents to the cell in an intact fashion such that they are biologically active and effective.

L1: Entry 24 of 28 File: USPT Aug 26, 1997

US-PAT-NO: 5661025
DOCUMENT-IDENTIFIER: US 5661025 A

TITLE: Self-assembling polynucleotide delivery system comprising dendrimer polycations

DATE-ISSUED: August 26, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Szoka, Jr.; Francis C.	San Francisco	CA	94116	
Haensler; Jean	57540 Petite-Rosselle			FR

US-CL-CURRENT: 435/458; 435/375, 514/2, 514/44, 514/9

CLAIMS:

What is claimed is:

1. A method for introducing a polynucleotide into a eukaryotic cell in vitro comprising the step of contacting the cell with a composition for presenting a polynucleotide to a subcellular component of a eukaryotic cell, comprising

a polynucleotide; and

a dendrimer polycation non-covalently coupled to the polynucleotide.

2. The method of claim 1, wherein the composition further comprises a membrane-permeabillzing agent.

3. The method of claim 2, wherein the membrane-permeabilizing agent comprises an amphipathic peptide.

4. The method of claim 3, wherein the amphipathic peptide comprises GALA.

5. The method of claim 2, wherein the membrane-permeabilizing agent comprises a cyclic peptide.

6. The method of claim 5, wherein the cyclic peptide is selected from the group consisting of gramicidin S tyrocidines.

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L1: Entry 25 of 28 File: USPT Dec 10, 1996

DOCUMENT-IDENTIFIER: US 5583020 A
TITLE: Permeability enhancers for negatively charged polynucleotides

Detailed Description Text (35):
Enhancer molecules of the present invention can be used to deliver a negatively charged polymer by co-packaging the polymer and the enhancer into a drug delivery vehicle, such as a liposome. The liposome can be taken up by a cell by endocytosis into an endosome. The enhancer molecule facilitates diffusion of the negatively charged polymer out of the liposome, across the endosome membrane, and into the cellular cytoplasm where it dissociates from the enhancer molecule.

L1: Entry 26 of 28 File: USPT Mar 2, 1993

DOCUMENT-IDENTIFIER: US 5190761 A
TITLE: Electromagnetic field triggered drug and chemical delivery via liposomes

Brief Summary Text (13):
Current methods of drug delivery via liposomes require that the liposome carrier will ultimately become permeable and release the encapsulated drug. This can be accomplished in a passive manner in which the liposome bilayer membrane degrades over time through the action of agents in the body. Every liposome composition will have a characteristic half-life in the circulation or at other sites in the body. In contrast to passive drug release, active drug release involves using an agent to induce a permeability change in the liposome vesicle. Liposome membranes can be constructed that become destabilized when the environment becomes acidic near the liposome membrane (Proc. Natl. Acad. Sci. USA, 84: 7851 (1987); Biochemistry, 28: 9508 (1989) and references therein). For example, when liposomes are endocytosed by a target cell they can be routed to acidic endosomes which will destabilize the liposome and result in drug release. Alternatively, the liposome membrane can be chemically modified such that an enzyme is placed as a coating on the membrane which slowly destabilizes the liposome (The FASEB Journal, 4: 2544 (1990)). Since control of drug release depends on the amount of enzyme initially placed in the membrane, which defines the time course of liposome destabilization, there is no way to modulate or alter drug release to achieve pulsatile "on demand" drug delivery. The same problem exists for pH-sensitive liposomes in that as soon as the liposome vesicle comes into contact with a target cell they will be engulfed and a drop in pH will lead to drug release.

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End of Result Set

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L1: Entry 28 of 28 File: DWPI Dec 17, 1998

DERWENT-ACC-NO: 1999-070288
DERWENT-WEEK: 199906

TITLE: Composition for specific delivery of biological agents with increased stability - comprises a supra-molecular complex containing block polymers having nonionic and polyionic segments and charged surfactants

Basic Abstract Text (3):
ADVANTAGE - The composition can be used to improve the therapeutic index with relatively low-molecular mass biological agents and biological agents having less than 10 charges and can facilitate administration of biological agents by increasing their aqueous solubility. It also increases the stability and decrease the side effects of the biological agents in the body and increases the bioavailability of the biological agents after administration to the body. The composition also provides site-specific drug delivery and release in sites with acidic pH such as tumours, bacteria, stomach, muscle or tissues or sites with alkali pH such as the gastrointestinal tract. It provides compartment-specific delivery of both macromolecular and small molecule biological agents into cells by releasing the biological agent in early endosomes and enhancing its transport in the cytoplasm and cellular compartments.

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Search Results - Record(s) 1 through 28 of 28 returned.

☐ 1. Document ID: US 6443949 B1

L1: Entry 1 of 28 File: USPT Sep 3, 2002

US-PAT-NO: 6443949
DOCUMENT-IDENTIFIER: US 6443949 B1

TITLE: Method of drug delivery to interstitial regions of the myocardium

DATE-ISSUED: September 3, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Altman; Peter A.	San Francisco	CA		

US-CL-CURRENT: 606/41; 604/21

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 2. Document ID: US 6426086 B1

L1: Entry 2 of 28 File: USPT Jul 30, 2002

US-PAT-NO: 6426086
DOCUMENT-IDENTIFIER: US 6426086 B1

TITLE: pH-sensitive, serum-stable liposomes

DATE-ISSUED: July 30, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Papahadjopoulos; Demetrios	late of San Francisco	CA		
Meyer; Olivier	Strasbourg			FR
Leroux; Jean-Christophe	Montreal			CA

US-CL-CURRENT: 424/450; 424/1.21, 424/9.321, 424/9.51, 424/94.3, 428/402.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw. Desc | Image

☐ 3. Document ID: US 6417326 B1

L1: Entry 3 of 28 File: USPT Jul 9, 2002

US-PAT-NO: 6417326
DOCUMENT-IDENTIFIER: US 6417326 B1

TITLE: Fusogenic liposomes

DATE-ISSUED: July 9, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Cullis; Pieter R.	Vancouver			CA
Choi; Lewis S. L.	Burnaby			CA
Monck; Myrna	Vancouver			CA
Bailey; Austin L.	Washington	DC		

US-CL-CURRENT: 530/324; 530/326, 530/327

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 4. Document ID: US 6379966 B2

L1: Entry 4 of 28 File: USPT Apr 30, 2002

US-PAT-NO: 6379966
DOCUMENT-IDENTIFIER: US 6379966 B2

TITLE: Intravascular delivery of non-viral nucleic acid

DATE-ISSUED: April 30, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Monahan; Sean D.	Madison	WI		
Wolff; Jon A.	Madison	WI		
Slattum; Paul M.	Madison	WI		
Hagstrom; James E.	Middleton	WI		
Budker; Vladimir G.	Madison	WI		
Rozema; David B.	Madison	WI		

US-CL-CURRENT: 435/455; 424/450, 514/44, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 5. Document ID: US 6372714 B1

L1: Entry 5 of 28 File: USPT Apr 16, 2002

US-PAT-NO: 6372714
DOCUMENT-IDENTIFIER: US 6372714 B1

TITLE: Composition for gene introduction into cell

DATE-ISSUED: April 16, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Tanaka; Kenichi	Niigata			JP
Kikuchi; Hiroshi	Edogawa-ku			JP
Suzuki; Norio	Edogawa-ku			JP

US-CL-CURRENT: 514/2; 264/4.1, 424/422, 424/428, 424/449, 424/450, 435/458

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 6. Document ID: US 6320017 B1

L1: Entry 6 of 28 File: USPT Nov 20, 2001

US-PAT-NO: 6320017
DOCUMENT-IDENTIFIER: US 6320017 B1

TITLE: Polyamide oligomers

DATE-ISSUED: November 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ansell; Steven Michial	Vancouver			CA

US-CL-CURRENT: 528/310; 424/450, 528/170, 528/322, 528/328, 528/332, 528/335, 528/336, 528/342, 554/35, 554/36, 554/37, 554/79

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 7. Document ID: US 6247995 B1

L1: Entry 7 of 28 File: USPT Jun 19, 2001

US-PAT-NO: 6247995
DOCUMENT-IDENTIFIER: US 6247995 B1

TITLE: Bioluminescent novelty items

DATE-ISSUED: June 19, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bryan; Bruce	Beverly Hills	CA	90210	

US-CL-CURRENT: 446/473; 124/74, 124/76, 222/1, 42/54, 435/189

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 8. Document ID: US 6200599 B1

L1: Entry 8 of 28 File: USPT Mar 13, 2001

US-PAT-NO: 6200599
DOCUMENT-IDENTIFIER: US 6200599 B1

TITLE: Ortho ester lipids

DATE-ISSUED: March 13, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Nantz; Michael H.	Davis	CA		
Zhu; Ji	Davis	CA		

US-CL-CURRENT: 424/450; 435/440, 435/458

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 9. Document ID: US 6152358 A

L1: Entry 9 of 28 File: USPT Nov 28, 2000

US-PAT-NO: 6152358
DOCUMENT-IDENTIFIER: US 6152358 A

TITLE: Bioluminescent novelty items

DATE-ISSUED: November 28, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bryan; Bruce	Beverly Hills	CA	90210	

US-CL-CURRENT: 229/87.19; 435/189, 493/955

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 10. Document ID: US 6113946 A

L1: Entry 10 of 28 File: USPT Sep 5, 2000

US-PAT-NO: 6113946
DOCUMENT-IDENTIFIER: US 6113946 A

TITLE: Self-assembling polynucleotide delivery system comprising dendrimer polycations

DATE-ISSUED: September 5, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Szoka, Jr.; Francis C.	San Francisco	CA		
Haensler; Jean	Petite Rosselle			FR

US-CL-CURRENT: 424/486; 514/44, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 11. Document ID: US 6113886 A

L1: Entry 11 of 28 File: USPT Sep 5, 2000

US-PAT-NO: 6113886
DOCUMENT-IDENTIFIER: US 6113886 A

TITLE: Bioluminescent novelty items

DATE-ISSUED: September 5, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bryan; Bruce	Beverly Hills	CA	90210	

US-CL-CURRENT: 424/49; 424/63, 424/64, 424/69, 424/70.1, 424/70.6, 424/70.7, 424/78.02, 424/94.4, 435/189, 510/119, 510/135, 510/392, 510/481

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 12. Document ID: US 6093701 A

L1: Entry 12 of 28 File: USPT Jul 25, 2000

US-PAT-NO: 6093701
DOCUMENT-IDENTIFIER: US 6093701 A

TITLE: Method for covalent attachment of compounds to genes

DATE-ISSUED: July 25, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Wolff; Jon A.	Madison	WI		
Hagstrom; James E.	Madison	WI		
Sebestyen; Magdolna G.	Madison	WI		
Budker; Vladimir	Madison	WI		

US-CL-CURRENT: 514/44; 435/320.1, 435/325, 435/455, 435/69.1, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 13. Document ID: US 6040167 A

L1: Entry 13 of 28 File: USPT Mar 21, 2000

US-PAT-NO: 6040167
DOCUMENT-IDENTIFIER: US 6040167 A

TITLE: Synthetic membrane vesicles containing functionally active fusion peptides as drug delivery systems

DATE-ISSUED: March 21, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gluck; Reinhard	Spiegel bei Bern			CH
Klein; Peter	Langenbruck			CH
Herrmann; Peter	Liestal			CH
Walti; Ernst Rudolf	Munchenbuchsee			CH

US-CL-CURRENT: 435/235.1; 424/179.1, 424/450, 514/2, 530/350, 530/388.1, 530/388.8, 530/389.7, 530/391.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 14. Document ID: US 5998588 A

L1: Entry 14 of 28 File: USPT Dec 7, 1999

US-PAT-NO: 5998588
DOCUMENT-IDENTIFIER: US 5998588 A

TITLE: Interactive molecular conjugates

DATE-ISSUED: December 7, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hoffman; Allan S.	Seattle	WA		
Stayton; Patrick S.	Seattle	WA		

US-CL-CURRENT: 530/402; 424/178.1, 424/193.1, 424/280.1, 424/78.08, 424/94.1, 530/350, 530/387.1, 530/391.1, 530/395, 530/399, 530/403, 530/404, 530/405, 530/406

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

☐ 15. Document ID: US 5990089 A

L1: Entry 15 of 28 File: USPT Nov 23, 1999

US-PAT-NO: 5990089

DOCUMENT-IDENTIFIER: US 5990089 A

TITLE: Self-assembling polynucleotide delivery system comprising dendrimer polycations

DATE-ISSUED: November 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Szoka, Jr.; Francis C.	San Francisco	CA		
Haensler; Jean	Petite-Rosselle			FR

US-CL-CURRENT: 514/44; 435/455

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 16. Document ID: US 5972380 A

L1: Entry 16 of 28 File: USPT Oct 26, 1999

US-PAT-NO: 5972380
DOCUMENT-IDENTIFIER: US 5972380 A

TITLE: Aminophospholipid compositions and uses thereof

DATE-ISSUED: October 26, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Daleke; David L.	Bloomington	IN		

US-CL-CURRENT: 424/450; 424/1.21, 554/79, 554/80

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 17. Document ID: US 5885613 A

L1: Entry 17 of 28 File: USPT Mar 23, 1999

US-PAT-NO: 5885613
DOCUMENT-IDENTIFIER: US 5885613 A

TITLE: Bilayer stabilizing components and their use in forming programmable fusogenic liposomes

DATE-ISSUED: March 23, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Holland; John W.	Glebe			AU
Madden; Thomas D.	Vancouver			CA
Cullis; Pieter R.	Vancouver			CA

US-CL-CURRENT: 424/450; 428/402.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 18. Document ID: US 5876995 A

L1: Entry 18 of 28 File: USPT Mar 2, 1999

US-PAT-NO: 5876995
DOCUMENT-IDENTIFIER: US 5876995 A

TITLE: Bioluminescent novelty items

DATE-ISSUED: March 2, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bryan; Bruce	Beverly Hills	CA	90210	

US-CL-CURRENT: 435/189; 426/104, 426/250, 426/262, 426/268, 426/383, 426/422, 426/540, 426/590, 426/592, 426/656, 426/66 , 530/350

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 19. Document ID: US 5876989 A

L1: Entry 19 of 28 File: USPT Mar 2, 1999

US-PAT-NO: 5876989
DOCUMENT-IDENTIFIER: US 5876989 A

TITLE: Transfer of molecules into the cytosol of cells

DATE-ISSUED: March 2, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Berg; Kristian	Heggedal			NO
Sandvig; Kirsten	Oslo			NO
Moan; Johan	Oslo			NO

US-CL-CURRENT: 435/173.7; 435/375, 514/410, 514/44, 540/145

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

☐ 20. Document ID: US 5786214 A

L1: Entry 20 of 28 File: USPT Jul 28, 1998

US-PAT-NO: 5786214
DOCUMENT-IDENTIFIER: US 5786214 A

TITLE: pH-sensitive immunoliposomes and method of gene delivery to the mammalian central nervous system

DATE-ISSUED: July 28, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Holmberg; Eric G.	Eagle River	AK		

US-CL-CURRENT: 435/375; 424/131.1, 424/152.1, 424/450, 424/9.321, 435/458, 435/6, 435/69.1, 514/44

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 21. Document ID: US 5767298 A

L1: Entry 21 of 28 File: USPT Jun 16, 1998

US-PAT-NO: 5767298
DOCUMENT-IDENTIFIER: US 5767298 A

TITLE: Aminophospholipid compositions and uses thereof

DATE-ISSUED: June 16, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Daleke; David L.	Bloomington	IN		

US-CL-CURRENT: 554/80; 424/450, 554/79

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw. Desc | Image

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☐ 22. Document ID: US 5763216 A

L1: Entry 22 of 28 File: USPT Jun 9, 1998

US-PAT-NO: 5763216
DOCUMENT-IDENTIFIER: US 5763216 A

TITLE: Gene encoding a human reduced folate carrier (RFC)

DATE-ISSUED: June 9, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Moscow; Jeffrey A.	Silver Spring	MD		
Cowan; Kenneth H.	Potama	MD		
Dixon; Kathy	Olney	MD		
He; Rui	Germantown	MD		

US-CL-CURRENT: 435/69.1; 435/320.1, 435/6, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 23. Document ID: US 5716788 A

L1: Entry 23 of 28 File: USPT Feb 10, 1998

US-PAT-NO: 5716788
DOCUMENT-IDENTIFIER: US 5716788 A

TITLE: Antibodies to human reduced folate carrier protein

DATE-ISSUED: February 10, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Moscow; Jeffrey A.	Silver Spring	MD		
Cowan; Kenneth H.	Potoma	MD		
Dixon; Kathy	Olney	MD		
He; Rui	Germantown	MD		

US-CL-CURRENT: 435/7.1; 435/7.21, 435/7.4, 435/7.7, 530/387.1, 530/388.1, 530/388.22, 530/391.3

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 24. Document ID: US 5661025 A

L1: Entry 24 of 28 File: USPT Aug 26, 1997

US-PAT-NO: 5661025
DOCUMENT-IDENTIFIER: US 5661025 A

TITLE: Self-assembling polynucleotide delivery system comprising dendrimer polycations

DATE-ISSUED: August 26, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Szoka, Jr.; Francis C.	San Francisco	CA	94116	
Haensler; Jean	57540 Petite-Rosselle			FR

US-CL-CURRENT: 435/458; 435/375, 514/2, 514/44, 514/9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 25. Document ID: US 5583020 A

L1: Entry 25 of 28 File: USPT Dec 10, 1996

US-PAT-NO: 5583020
DOCUMENT-IDENTIFIER: US 5583020 A

TITLE: Permeability enhancers for negatively charged polynucleotides

DATE-ISSUED: December 10, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sullivan; Sean	Boulder	CO		

US-CL-CURRENT: 435/458; 514/44, 548/335.1, 560/1, 564/230, 564/384, 564/463, 564/509

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 26. Document ID: US 5190761 A

L1: Entry 26 of 28 File: USPT Mar 2, 1993

US-PAT-NO: 5190761
DOCUMENT-IDENTIFIER: US 5190761 A

TITLE: Electromagnetic field triggered drug and chemical delivery via liposomes

DATE-ISSUED: March 2, 1993

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Liburdy; Robert P.	Tiburon	CA	94920	

US-CL-CURRENT: 424/450; 264/4.3, 428/402.2, 436/829, 514/866, 607/154

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 27. Document ID: US 4957735 A

L1: Entry 27 of 28 File: USPT Sep 18, 1990

US-PAT-NO: 4957735
DOCUMENT-IDENTIFIER: US 4957735 A

TITLE: Target-sensitive immunoliposomes- preparation and characterization

DATE-ISSUED: September 18, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Huang; Leaf	Knoxville	TN		

US-CL-CURRENT: 424/178.1; 424/147.1, 424/427, 424/450, 424/812, 436/829, 530/388.1, 530/388.3, 530/391.1, 530/391.9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

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☐ 28. Document ID: WO 9856348 A1 AU 9878367 A

L1: Entry 28 of 28 File: DWPI Dec 17, 1998

DERWENT-ACC-NO: 1999-070288
DERWENT-WEEK: 199906
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TITLE: Composition for specific delivery of biological agents with increased stability - comprises a supra-molecular complex containing block polymers having nonionic and polyionic segments and charged surfactants

INVENTOR: EISENBERG, A; KABANOV, A V ; KABANOV, V A

PRIORITY-DATA: 1997US-049552P (June 13, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9856348 A1	December 17, 1998	E	054	A61K009/10
AU 9878367 A	December 30, 1998		000	A61K009/10

INT-CL (IPC): A61 K 9/10; A61 K 47/32; A61 K 47/34; A61 K 47/36

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Clip Img | Image

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(drug adj1 delivery) same endosome$	28

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L2: Entry 53 of 79 File: USPT Jul 15, 1997

DOCUMENT-IDENTIFIER: US 5648506 A
TITLE: Water-soluble polymeric carriers for drug delivery

Brief Summary Text (11):
The present invention relates to a method of drug delivery that utilizes water-soluble polymers as carriers for a drug. The delivery of drugs that are inherently insoluble or poorly soluble in an aqueous medium can be seriously impaired if the only suitable mode of delivery is by intravenous injection. The attachment of such drugs to water-soluble macromolecules that act as carriers can greatly benefit this problem and allow for intravenous, subcutaneous, or intramuscular delivery. Examples of poorly aqueous drugs that may benefit from this form of drug delivery are taxol, amphoterecin B, etc. Examples of water-soluble polymers that may be used as carriers in such a system are polyethylene glycols (PEG), polyvinyl alcohol, polyhydroxyethyl methacrylate, polyacrylamide, polyacrylic acid, polyethyloxazoline, polyvinyl pyrrolidinone, and polysaccharides such as chitosan, alginates, hyaluronic acid, dextrans, etc.

Detailed Description Text (2):
Water-soluble polymers such as PEG (Aldrich), and monomethoxy PEG (MPEG, Nippon Oil and Fats) were utilized to bind poorly aqueous-soluble drugs. Taxol (Sigma chemical) was the drug utilized for covalent linking to the carrier polymers. The 8-arm `star` PEG polymer (MW 22800) was obtained from Macrochem Labs and acrylic acid from Aldrich. It should be recognized by anyone skilled in the art that other water-soluble polymers and other drugs may be utilized in a similar form of drug delivery. Examples of water-soluble polymers (denoted hereon by P) that can be used as carriers in such a drug delivery system are polyethylene glycols (PEG), polyvinyl alcohol, polyhydroxyethyl methacrylate, polyacrylamide, polyacrylic acid, polyethyloxazoline, polyvinyl pyrrolidinone, and polysaccharides such as chitosan, alginates, hyaluronic acid, dextrans, etc. These polymers can be covalently linked to the drugs by means of linkages (denoted hereon by X) such as ester, diester, urethane, amide, secondary or tertiary amine, ether etc.